

CLAIMS

1. A polynucleotide comprising all or a portion of any of the nucleotide sequences as set forth in SEQ ID NOS: 1-5.

2. A primer set for detecting *Lactbacillus hexosus* comprising an oligonucleotide consisting of the nucleotide sequence as set forth in SEQ ID NO: 6 and an oligonucleotide consisting of the nucleotide sequence as set forth in SEQ ID NO: 7.

3. A primer set for detecting *Lactbacillus pseudocollinoides* comprising an oligonucleotide consisting of the nucleotide sequence as set forth in SEQ ID NO: 7 and an oligonucleotide consisting of the nucleotide sequence as set forth in SEQ ID NO: 8.

4. A primer set for detecting *Pediococcus damnosus* comprising an oligonucleotide consisting of the nucleotide sequence as set forth in SEQ ID NO: 9 and an oligonucleotide consisting of the nucleotide sequence as set forth in SEQ ID NO: 10.

5. A primer set for detecting and distinguishing lactic acid bacteria, comprising an oligonucleotide consisting of the nucleotide sequence as set forth in SEQ ID NO: 30, an oligonucleotide consisting of the nucleotide sequence as set forth in SEQ ID NO: 11, an oligonucleotide consisting of the nucleotide sequence as set forth in SEQ ID NO: 12, an oligonucleotide consisting of the nucleotide sequence as set forth in SEQ ID NO: 13 and an oligonucleotide consisting of the nucleotide sequence as set forth in SEQ ID NO: 14.

6. A probe set for detecting and distinguishing lactic acid bacteria, comprising an oligonucleotide consisting of the nucleotide sequence as set forth in SEQ ID NO: 15, an oligonucleotide consisting of the nucleotide sequence as set forth in SEQ ID NO: 16, an oligonucleotide

consisting of the nucleotide sequence as set forth in SEQ ID NO: 17, an oligonucleotide consisting of the nucleotide sequence as set forth in SEQ ID NO: 18 and an oligonucleotide consisting of the nucleotide sequence as set forth in SEQ ID NO: 19.

- 5        7. A kit for detecting and distinguishing lactic acid bacteria, comprising a primer set according to claim 5 and a probe set according to claim 6.
8. A method for detecting *Lactbacillus hexosus* by gene amplification comprising a step of amplifying a nucleic acid fragment using a primer set according to claim 2 and a step of detecting the obtained nucleic acid fragment.
- 10       9. A method for detecting *Lactbacillus pseudocollinoides* by gene amplification comprising a step of amplifying a nucleic acid fragment using a primer set according to claim 3 and a step of detecting the obtained nucleic acid fragment.
- 15       10. A method for detecting *Pediococcus damnosus* by gene amplification comprising a step of amplifying a nucleic acid fragment using a primer set according to claim 4 and a step of detecting the obtained nucleic acid fragment.
- 20       11. A method for detecting and distinguishing lactic acid bacteria comprising a step of amplifying a nucleic acid fragment using a primer set according to claim 5 and a step of measuring the melting temperature of a hybrid between the obtained nucleic acid fragment and a probe set according to claim 6.